

2009 Drinking Water Quality Report for Nellis Air Force Base

This report is a snapshot of calendar year 2009 drinking water quality at Nellis AFB as required by the Safe Drinking Water Act. The Safe Drinking Water Act was amended in 1996 to require states to develop and implement source water assessment programs for existing and potential threats to the quality of public drinking water and to include a summary of the assessment in the water system's annual consumer confidence report. Specifically, states are required to delineate the sources of public drinking water, identify potential contamination sources within the delineated area, assess the water system's susceptibility to contamination and inform the public of the results. These results are summarized below:

Where does my water come from?

Most of the Nellis AFB drinking water is from Lake Mead and is supplied by the Southern Nevada Water Authority (SNWA). Virtually all of the water in Lake Mead begins as snowmelt in the Rocky Mountains and arrives via the Colorado River. The Las Vegas Wash, which carries storm water and treated wastewater into Lake Mead, accounts for only 1.5 percent of all the water in the lake. The Virgin River and Muddy River combined also provide approximately 1.5 percent of Lake Mead's water.

The SNWA water is supplemented by a small percentage of groundwater from wells on and near the base. The well water comes from the Las Vegas Valley Aquifer.

Potential sources of contamination for lakes and reservoirs include urban chemicals such as fertilizers and pesticides, industrial activities and wildlife. Landfills, domestic septic systems, and leaking underground storage tanks are all potential sources of contamination for groundwater aquifers.

Treatment Process

SNWA has advanced water treatment facilities that are designed to provide water that meets Safe Drinking Water Act standards.

All the water drawn from Lake Mead is sent to the Alfred Merritt Smith or River Mountains water treatment facilities. As it arrives, the water is treated with chlorine and ozone to kill any potentially harmful microscopic organisms. A multistage filtration system is used to remove particles from the water.

As the water leaves the water treatment facility, additional chlorine is added to protect it on the way to the customers' taps. It is also treated to prevent corrosion of the pipelines. The water from base wells are chlorinated and then mixed with the SNWA water.

In addition to the SNWA supplied surface water, the Nellis Air Force Base public water system consists of eight active wells (five potable and three irrigational) and also utilizes a metered connection with Las Vegas Valley Water District as an additional water source. Three of the eight wells are located off base and are currently in compliance with revised arsenic maximum contaminant level (MCL) of 10 parts per billion. The remaining five of the eight active wells are located on base. Three of the five have arsenic concentrations that exceed the MCL, but are used only for irrigational purposes. The remaining two wells on base are blended with SNWA off base water; the resultant arsenic concentration is below the arsenic MCL of 10 parts per billion. The revised arsenic MCL regulation became effective in January 2006. Rest assured, the water shop maintains a staff of well-trained professionals who operate and maintain the system.

Analysis and Compliance

Every month, technicians from SNWA collect and analyze water samples from Nellis AFB's drinking water system and its water treatment facilities. In fact, the water is tested even more frequently and extensively than the Safe Drinking Water Act and the Nevada Administrative Code requires. The test results are shown in the table below. Contact Bioenvironmental Engineering at 702-653-3316 if you need more information.

We routinely monitor for disinfectant residual in the distribution system. This measurement tells us whether we are effectively disinfecting the water supply. Disinfectant residual is the amount of chlorine present in the pipes of the distribution system. If the amount of disinfectant is too low, organisms could grow in the pipes.

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. These symptoms, however, are not caused only by organisms in drinking water, but also by other factors.

While Nellis AFB drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understandings of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Water System Contamination Vulnerability

At the time of the assessment there were no identified sources of potential contamination to the aquifer providing the water to the water system, or the sources of potential contamination were determined to pose a low potential to contaminate the drinking water

system.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases radioactive material, and can pick up substances resulting from the presence of animals or human activity.

Contaminants that may be present in source (untreated) water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff and industrial or domestic wastewater discharges.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential use.
- Organic chemical contaminants, including synthetic or volatile organic chemicals, which are byproducts of industrial processes and can come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or the result of industrial activities.

In order to ensure the tap water is safe to drink, the EPA prescribes regulations to limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water and must provide the same protection for public health. For more information on bottled water quality, call the International Bottled Water Association at 800-WATER11.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available

from the EPA's Safe Drinking Water Hotline at 800-426-4791.

Other Health Information

The following substances are monitored by SNWA but are not regulated under the Safe Drinking Water Act. We have included this information because consumers have a right to know about issues affecting their water.

Cryptosporidium

Cryptosporidium is a naturally occurring microscopic organism which is found in 95 percent of all surface water in the United States. If ingested, it can cause gastrointestinal distress and fever. Filtration, sedimentation, and disinfection using ultraviolet light and ozone are generally effective at removing *Cryptosporidium*. SNWA carefully monitors the water for the presence of this organism.

Perchlorate

Perchlorate, a man-made salt consisting of chloride and oxygen, has been detected at low levels in untreated and treated water. Scientists have traced the salt's origin to shallow groundwater entering the Las Vegas Wash. Although there are no federal limits for perchlorate in drinking water, Southern Nevada's water agencies are closely monitoring efforts by the Nevada Division of Environmental Protection to intercept and remove perchlorate at its source.

Frequently Asked Questions

Is my tap water safe to drink?

Your tap water meets or surpasses all Safe Drinking Water Act standards. The Alfred Merritt Smith Water Treatment Facility has been recognized by the National Partnership for Safe Water for its efforts to ensure the Southern Nevada's municipal water meets these water quality standards. Water samples are taken from our water distribution system monthly and analyzed to ensure compliance with standards.

If tap water is really of good quality, why does it taste the way it does?

Our water's taste is caused by naturally occurring minerals and chlorine. The chlorine is added to keep the water safe from bacteria. Water quality is best measured by the amount and concentration of contaminants. We have very few contaminants in our drinking water and those that are present are within Safe Drinking Water Act limits.

Do I need to use a water treatment system or drink bottled water?

Not unless you want to improve your tap water's taste or remove the minerals that cause it to be "hard" (water is considered hard if the mineral concentration is 100 ppm or more; the average hardness in the Las Vegas Valley is 318 ppm). While many people prefer the

taste of bottled water, tap water is subject to more stringent quality standards and is tested more frequently. Additionally, the cost of the average liter of bottled water is more than 1,000 times the same amount of tap water. Pregnant women and people with medical conditions affecting their immune system should consult a physician to determine whether a supplemental treatment system is appropriate. For additional information on home water treatment systems, contact the SNWA at 702-862-3400 or visit their website at www.snwa.com.

How will I be notified if a significant health risk associated with my water quality develops?

This report is considered the appropriate mechanism for notifying the consumer of routine/non-emergency compliance violations. Certain emergency situations may warrant a more active notification effort, including but not limited to: additional publications, postings in public places, mass-mailings, or working through other well-established mass-notification systems.

Additional Information and Input

If you would like a copy of this report or have questions, please contact the Public Affairs Office, Mr. Charles Ramey at 702-652-2750 or 800-859-3804, or Bioenvironmental Engineering at 702-653-3316 or the Civil Engineering Water Utility Shop at 702-652-4246. Questions and comments can also be mailed to the Public Affairs Office at: 99 ABW/PA, 4430 Grissom Ave, Bldg 11, Ste 107 Nellis AFB, NV 89191. The most current source water assessments are available at the Bioenvironmental Engineering office for the Nellis AFB wells, and through SNWA for water provided by SNWA. If there are any major concerns to be addressed about the quality of the water, Town Hall meetings will be held at the Base Theater or the Community Center. Please contact the Base Housing Office for more information at 652-1840.

For additional information on the quality of your water, call SNWA at 702-862-3400 or go to SNWA's website at www.snwa.com. Information on Nevada's Safe Drinking Water Program is available from the Nevada Bureau of Health Protection Services at 702-486-5068. General information for drinking water can be found in the EPA's website at www.epa.gov/safewater.

Water Quality Data Tables

The tables below list the drinking water contaminants that were detected. The presence of contaminants in the water does not necessarily indicate the water poses a health risk. Unless otherwise noted, the data presented in the tables are from testing done in the 2009 calendar year. The EPA or the state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

The following are definitions of terms used for identifying testing criteria:

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Residual Disinfectant Level (MRDL): The highest level of disinfectant allowed in. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

N/A: Not applicable, or no MCL or MCLG established.

ND: Not detected in our drinking water.

Parts per million (ppm): Parts per million or milligrams per liter. A measure of the concentration of a substance roughly equal to 1 inch in 16 miles.

Parts per billion (ppb): Parts per billion or micrograms per liter. A measure of the concentration of a substance roughly equal to 1 inch in 16,000 miles.

PicoCuries per Liter(pCi/L): A measure of radioactivity in water. Low levels of radiation occur naturally in many water systems, including the Colorado River, the source of our water.

Nephelometric Turbidity Units (NTU): A measure of the clarity of water. Turbidity of 5 NTU is just barely noticeable to the average person.

Disinfection by-Product: A substance created by the chemicals or processes used to destroy potentially harmful microorganisms.

